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CARIBBEAN *HORAMA* (LEPIDOPTERA: ARCTIIDAE: CTENUCHINAE) WITH NEW SPECIES AND NOTES ON MIMICRY

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Abstract.—*Horama* **margarita**, new species, is described from Cuba and *Horama* ***rawlinsi***, new species, is described from Haiti and the Dominican Republic. These two species have been confused with *Horama diffissa*. The male of *Horama diffissa* is described and illustrated for the first time. Mimicry with the paper wasp, *Polistes exclamans*, is noted. *Bourreria ovata* [Boraginaceae] and *Chrysobalanus icaco* [Rosaceae] are reported as sources of nectar for *Horama diffissa*. *Horama zapata*, previously kown only from Cuba, is reported from the Bahamas.

Key Words: Caribbean, mimicry, distribution, *Horama margarita, Horama rawlinsi*

On Great Exuma Island in the Bahamas, I observed many *Horama diffissa* Grote (1867) nectaring at the blossoms of Strongback, *Bourreria ovata* Miers (Boraginaceae), and Coco Plum, *Chrysobalanus icaco* Lineaus (Rosaceae). The moths could be easily collected in the daytime but would also come to an ultra-violet light after dark. Adult diurnal activity began in the late afternoon, about 1600 hours, EST, and lasted one to two hours with another peak in activity at dusk. Based on field observations from November through April, and on museum records, the peak flight appears to be in January. Several pairs were taken in copula and it was obvious only one brown *Horama* species was present. *Horama zapata* Dietz and Duckworth, a gray species, also occurred on the island, but in this case diurnal activity was not observed. This represents the first report of *H. zapata* outside of Cuba and the first report for *H. diffissa* in the Bahamas.

On Exuma, *H. diffissa* was a Batesian mimic of a paper wasp, *Polistes exclamans* Viereck [Vespidae]. Both wasp and moth were abundant around blossoms of Coco Plum. In flight, the mimicry was very striking as the two species were nearly indistinguishable. As with many mimetic and chemical-protected arctiids the body is very elastic allowing it to be pinched without being crushed. Another vespid, *Misschocyttarus cubensis* (Sauss.), and a second *Polistes* species were also present and represent Muellerian mimics of the dominant wasp, *P. exclamans*, forming a complex mimetic assemblage.

A genitalic dissection of a male *H. diffissa* disclosed structures very dissimilar to those previously associated with this species. Based on a study of a small series of adults, Dietz and Duckworth (1976) had concluded all represented a single, sexually dimorphic species. Based on additional specimens and field observations, I determined that three species were involved. Dietz and Duckworth had only representatives of females of *H. diffissa* and only males of two other species from Cuba and Haiti. The type of *H. diffissa* was examined to ascertain its status with regards to the other species involved. The "male" type of *H. diffissa*, in the Academy of Natural Sciences, Philadelphia, has the abdomen missing and is actually a female! I was able to associate the abdomenless female type with additional females of *H. diffissa* from Cuba and, ultimately, with a large series of females from the Bahamas. This made it possible to associate males by way of mated pairs from Exuma Island in the Bahamas. The actual male of *H. diffissa,* associated for the first time, is illustrated (Figs. 10, 11).

In view of the striking yet identical morphological features of the female genitalia (see Dietz and Duckworth 1976, fig. 19, for an illustration of a Cuban specimen), the two populations appear conspecific and the population from the Bahamas will not be named at this time. The Bahamian population probably represents a smaller race of *H. diffissa*; wing expanse averaging 42 mm in Cuba, 32 mm in the Bahamas. Besides the size differences, color pattern is also distinctive: Cuban *H. diffissa* have yellow scaling on the frons which extends to the base of the antennae, in Bahamian *H. diffissa* the yellow extends to the head above the bases of the antennae; the abdomen is brown in Cuba, black in the Bahamas; the long hairs at the apex of the hind tibia are yellow in Cuba, black in the Bahamas (i.e. the yellow hairs begin on the tarsi in Bahamian specimens). Examination of the genitalia of a Cuban male might be revealing, but the type of variation observed can be expected amongst mimetic species using different models.

Herrich-Schäffer's (1866) *H. pretellus* type has not been located, but he refers to it as being larger than *H. pretus* [which is 31–36 mm in expanse] and Dietz and Duckworth (1976) are undoubtedly correct in treating it as a synonym of *H. diffissa.* This leaves a small Cuban species with no name. In addition, the Haitian specimen illustrated by Dietz and Duckworth as male *H. diffissa* is distinct from *H. diffissa* and is described as new. It has recently been collected in the Dominican Republic.

Horama margarita, New Species

Male (Fig. 1).—Head dark gray-brown with yellow scaling covering upper frons; palpi yellow, tinged with brown dorsally; antennae yellow with dark brown band from base to beyond middle and at tip, weakly serrate; tegulae yellow with curving black band in middle; patagia gray-brown; dorsum of thorax gray-brown; metepimeron yellow and white, metameron yellow; abdomen with first tergite white, sides bulbous, middle filled with yellow, second tergite gray-brown with medial yellow spot and yellow and white spots laterally; third tergite lacks median yellow; remaining tergites gray-brown. First abdominal sternite brown; second sternite white; remaining sternites brown with yellow margins; legs yellow, brown at joints. Forewing orange-brown; hindwing marginal band similar, but basal half orange.

Wing expanse.—27 mm.

Male genitalia (Figs. 8, 9).—Upper portion of valves with lightly chitinized flanges; uncus elongate and bifurcate at apex; aedoeagus with an expanded proximal portion and a simple distal portion.

Female.—Unknown.

Deposition of type material.—Holotype male in the National Museum of Natural History, Washington, D.C.

Holotype data.—P. Cardero, VI-1964, Turquino, Cuba.

Diagnosis.—*Horama margarita* has yellow scaling behind the eye (this region black in both races of *H. diffissa*) in addition to having yellow extend on the front to above the bases of the antennae. The hind tibia have black scaling at the apex (unlike sympatric *H. diffissa* in Cuba, but similar to Bahamian *H. diffissa*); abdomen very similar to Cuban *H. diffissa* (unbanded). *Horama margarita* is the smallest of the three species, only 27 mm in expanse, making it easy to separate from sympatric *H. diffissa* (42 mm). The male genitalia exhibit a deeply notched uncus in *H. diffissa* contrasting with the rounded, blunt tip of the uncus in *H. margarita*.

Horama margarita's bifurcate uncus readily separates it from *H. rawlinsi*. External morphology of these two species appear identical but, in the small sample before me, the metepimeron is white in *H. rawlinsi* and yellow and white in *H. margarita*. Positive identification requires genitalic comparison.

Horama rawlinsi, NEW SPECIES

Male (Fig. 4).—Head dark gray-brown with yellow scaling covering upper frons; palpi yellow, tinged with brown dorsally; antennae yellow with dark brown band from base beyond middle and at tip, weakly serrate; tegulae yellow with curving black band in middle; patagia gray-brown; dorsum of thorax gray-brown; metepimeron white, metameron yellow; abdomen with first tergite white, sides bulbous, middle filled with yellow, second tergite gray-brown with medial yellow spot and yellow and white spots laterally; third tergite lacks median yellow; remaining tergites gray-brown. First abdominal sternite brown; second sternite white; remaining sternites brown with yellow margins; legs yellow, brown at joints. Forewing orange-brown; hindwing marginal band similar, but basal half orange.

Wing expanse.—33 mm.

Male genitalia (Figs. 5–7).—Valves with conical, projecting protuberances on dorsal-lateral edge; uncus nearly parallel-sided and rounded at apex; aedoeagus sickle-shaped (Fig. 5 is a lateral view), lacking the proximal extensions of the other two species illustrated (Figs. 9, 10).

Female.—Unknown.

Deposition of type material.—Holotype male is deposited in the Carnegie Museum of Natural History. One paratype male (Haiti, Port-au-Prince, ca. 300 ft., 21–29 March) in the American Museum of Natural History.

Holotype data.—Dominican Republic, Pedernales, 26 km N Cabo Rojo, 18-06N, 71-38W, 730 m, 31 July 1990, J. Rawlins, C. W. Young, S. Thompson.

Diagnosis.—The male genitalia of *H. rawlinsi* was illustrated (as *H. diffissa*) by Dietz & Duckworth (1976; p. 35, figs. 7a, b, c). This species is nearly indistinguishable from *H. margarita*. See diagnosis under *H. margarita*.

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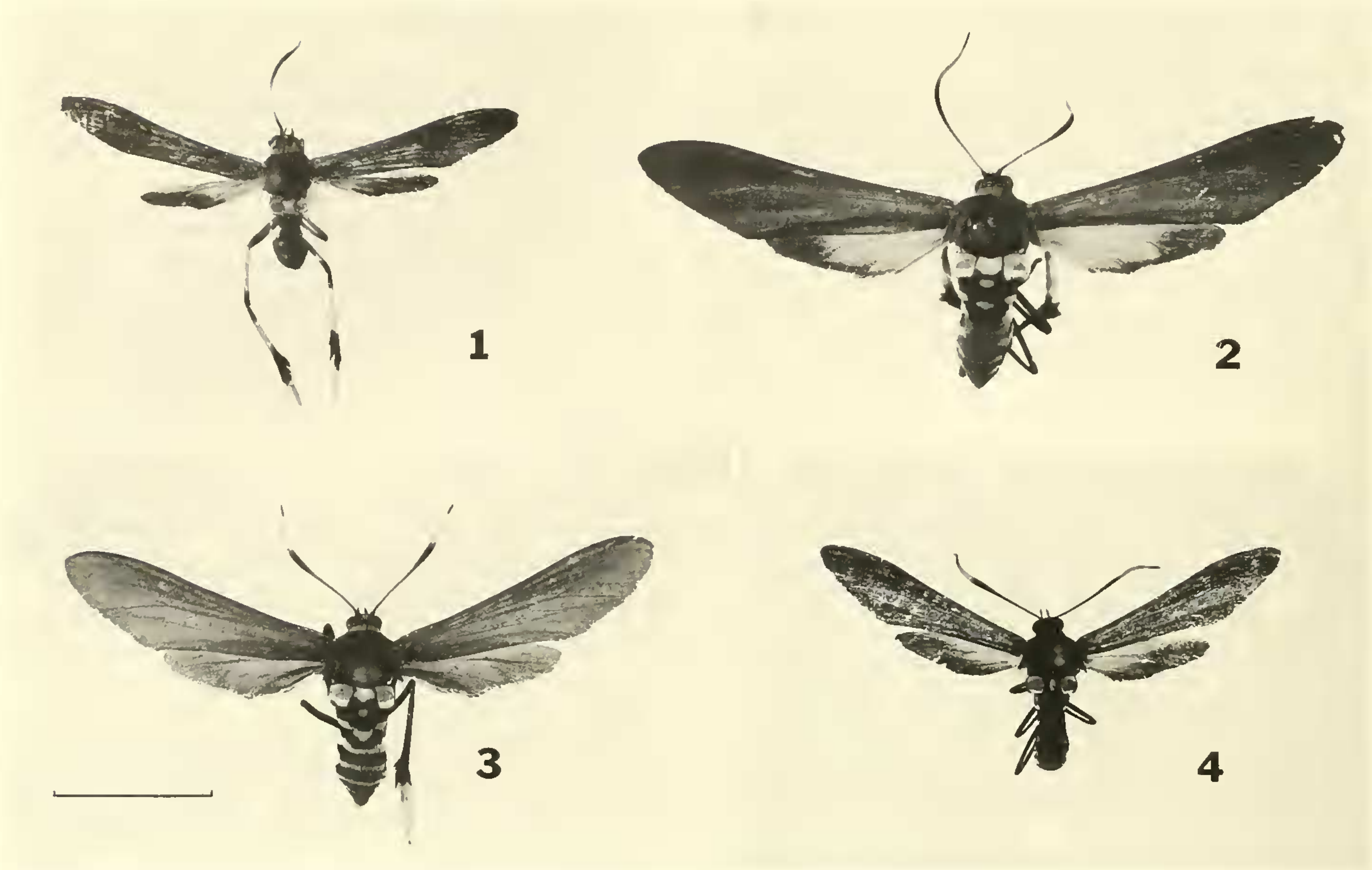
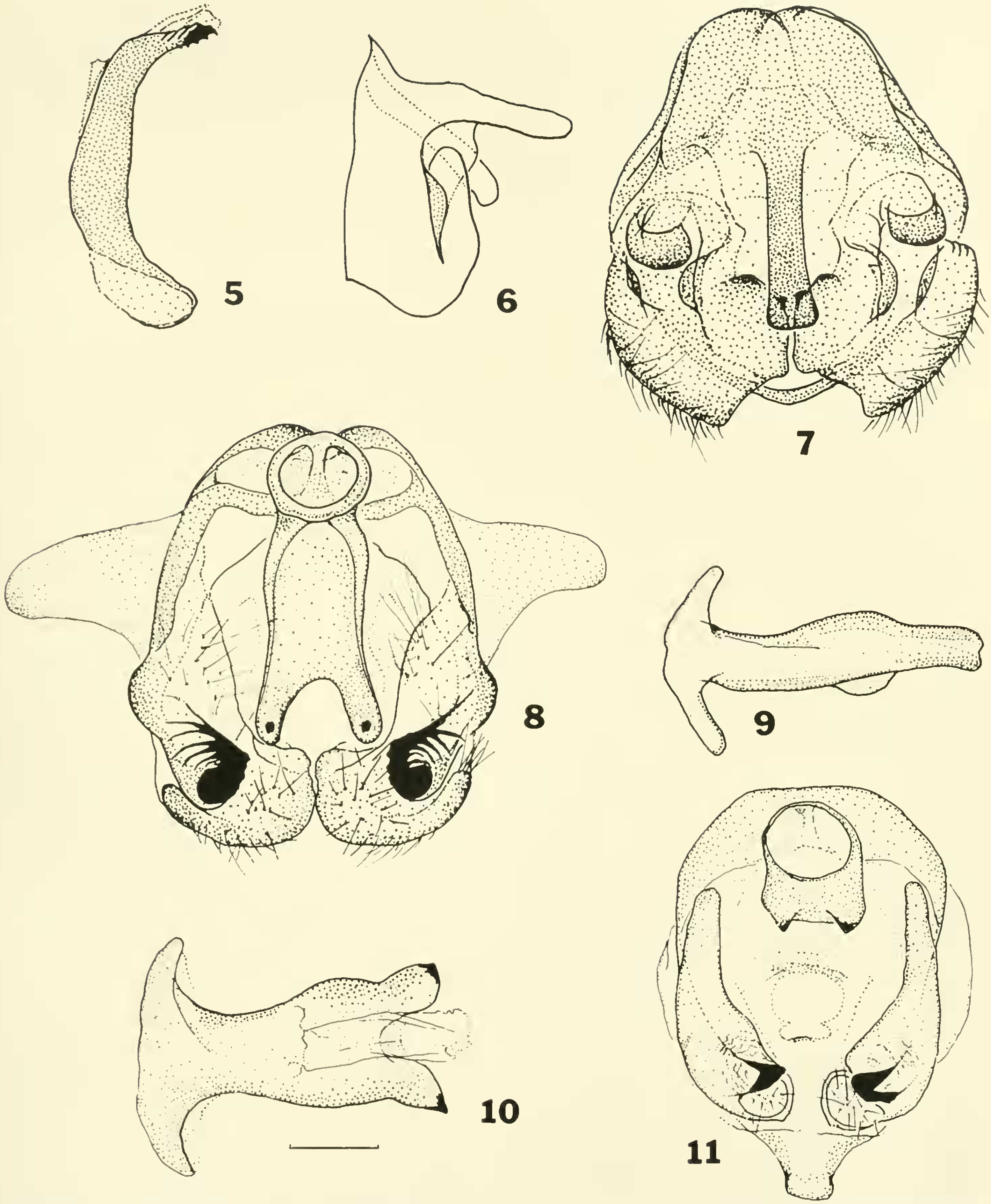


Figs. 1–4. 1, *Horama margarita*, Holotype male, Alto de Cardero, Turquino, Cuba, June 1964, Alayo. 2, *Horama diffissa*, female, same data. 3, *Horama diffissa*, female, Bahamas, Great Exuma Island, Simon's Point, N. lat. 23°31′50″ W. long. 75°47′30″, December 31, 1981, T. L. McCabe. 4, *Horama rawlinsi*, Holotype male, Port-au-Prince, Haiti, 21–29 March. Scale line = 10.0 mm.



Figs. 5–11. 5, *Horama rawlinsi,* aedoeagus of holotype, lateral view. 6, *Horama rawlinsi,* lateral view of valves, diagrammatic, reduced. 7, *Horama rawlinsi,* male genitalia of holotype, dorsoventral view, Dominican Republic [Figs. 5–7 drawn from McCabe slide no. 1962]. 8, *Horama margarita,* male genitalia of holotype, dorsoventral view, Cuba. 9, *Horama margarita,* male aedoeagus of holotype, ventral view [Figs. 8–9 drawn from McCabe slide no. 1331]. 10, *Horama diffissa,* male aedoeagus, ventral view, Bahamas (Great Exuma Island, Simon's Point, lat. 23°31′50″ N. long. 75°47′30″ W., January 21, 1980, T. L. McCabe). 11, *Horama diffissa,* male genitalia, dorsoventral view, same data [Figs. 10–11 drawn from McCabe slide no. 575]. Scale line = 0.27 mm.

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